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| **Activity title** |
| **Make your own snow sparkle slime** |
| **Stay safe** |
| Whether you are a scientist researching a new medicine or an engineer solving climate change, safety always comes first. An adult must always be around and supervising when doing this activity. You are responsible for:    • ensuring that any equipment used for this activity is in good working condition  • behaving sensibly and following any safety instructions so as not to hurt or injure yourself or others    Please note that in the absence of any negligence or other breach of duty by us, this activity is carried out at your own risk. It is important to take extra care at the stages marked with this symbol:⚠ |
| **Time required** |
| 0 – 30 minutes |
| **Activity summary** |
| You might have played with slime – it’s the gooey slippery stuff that’s fun to pull and stretch! In this activity, we are going to dive into the science behind this sticky stuff and find out how to make your own glittery slime. |
| **What equipment will you need?** |
| * 60 ml of PVA glue – this is the white glue you might use at school and for crafts * ½ tablespoon of bicarbonate of soda * ½ cup of shaving cream (make sure it is cream not gel) * ½ tablespoon of contact lens solution – check that it has boric acid as an ingredient * A glass of water * Food colouring (any colour you would like) * Lots of glitter! * A mixing bowl and a wooden spoon * An adult to help |
| **How to do it** |
| Watch the video [here](https://www.youtube.com/watch?v=cVjqxBW7VOM&embeds_referring_euri=https%3A%2F%2Feducation.theiet.org%2F&source_ve_path=Mjg2NjY):  **Step 1**  Pour the 60 ml of glue in the bowl.  **Step 2**  Add 1 tablespoon of water and stir with your spoon.  **Step 3**  Add the shaving cream and stir again.  **Step 4**  Add ½ a tablespoon of bicarbonate of soda and stir again.  **Step 5**  Now add your glitter and food colouring!  **Step 6**  Finally, add the contact lens solution. Add it slowly whilst you continue to stir. And check the consistency - too much and the slime won't be elastic, too little and it will stick to your hands.  **Step 7**  Use your hands to knead the slime until it’s springy.  **Well done – you’ve cracked the Christmas challenge!** |
| **Now try this** |
| There are lots of cool things you can do with slime. Here are some fun ideas:   * Try pulling it out and seeing how long you can make it before it snaps. * Use a straw to blow bubbles in your slime. * Try and make your initials using the slime. Or even write your name. * Press things into slime to make an imprint. You could try small plastic toys, coins or keys. But remember to wipe them with a damp cloth afterwards. * Roll your slime into balls and make a slime snowman. You’ll have to be quick before it melts! |
| **Bonding basics** |
| So what’s going on to make all those ingredients we used to make the slime go from sloshy to sticky? |
| **Here’s the science!**  The white glue we used is called PVA – those letters stand for Polyvinyl Acetate – that’s quite a mouthful but the bit we’re interested in is the ‘poly’…  The molecules in the glue are something called **polymers**. Polymers are very big molecules made up of many smaller molecules layered together in a repeating pattern. These long chains of molecules slide past each other easily, like strands of dry spaghetti – and that’s what keeps the glue flowing.  The smaller molecules that come together to form polymers are called **monomers** -little building blocks, a bit like Lego bricks, that link together over and over to form a large polymer.  When we add the contact lens solution something AMAZING happens. There’s a chemical reaction which changes the way the molecules connect and bond, and a new substance is formed.  In slime, the molecules from the PVA glue and the contact lens solution have become tangled up or “cross linked” to use the scientific term. It’s as if the spaghetti has been cooked and mixed together so the strands are knotted around each other. The tangle makes the slime stiffer – whilst still sticky. These bonds are also really good at trapping water and so that’s why slime is wet. |
| **Fun fluid fact!** |
| Slime is a bit strange! It flows but it is also thick – that’s what makes it interesting to play with. It changes and can feel thick or runny depending on how you handle it. The word that describes the thickness of a fluid is ‘**viscosity’**. And scientists call a material that changes viscosity – like our slime - a **non-Newtonian fluid.**  When you pour slime or let it ooze through your fingers, it has a low viscosity and flows like a thick liquid. When you squeeze a non-Newtonian slime, or pound it with your fist, it feels hard, like a wet solid.  **What’s happening?**  It feels more solid when you hit or squeeze it because that pressure squeezes the particles in the slime together, making it hard for them to slide against each other. |